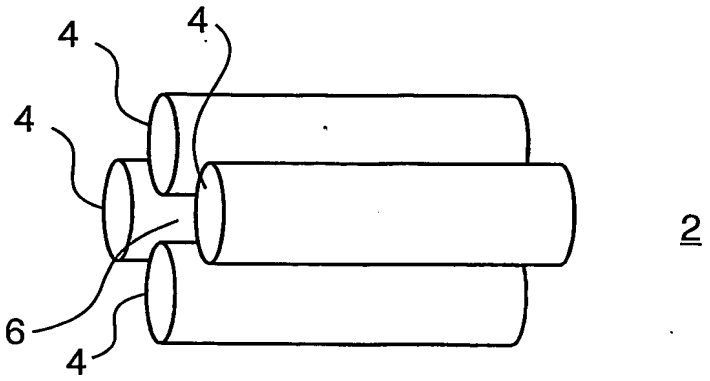

Figure 1

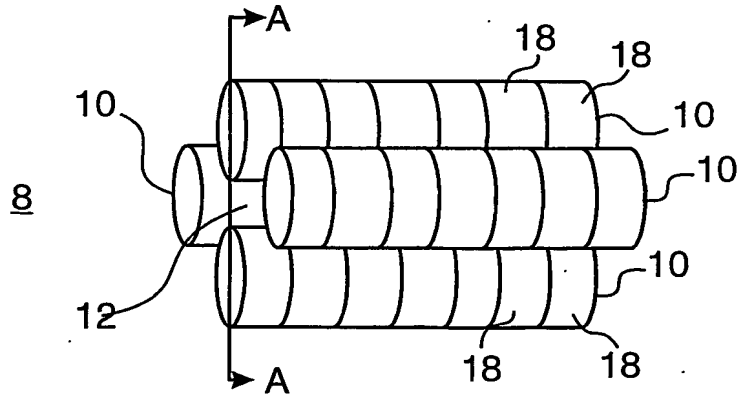

Figure 2a

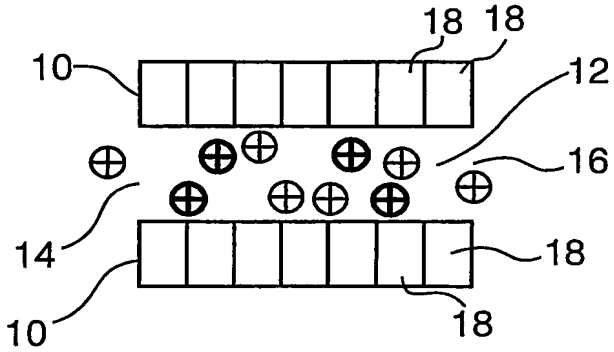

Figure 2b

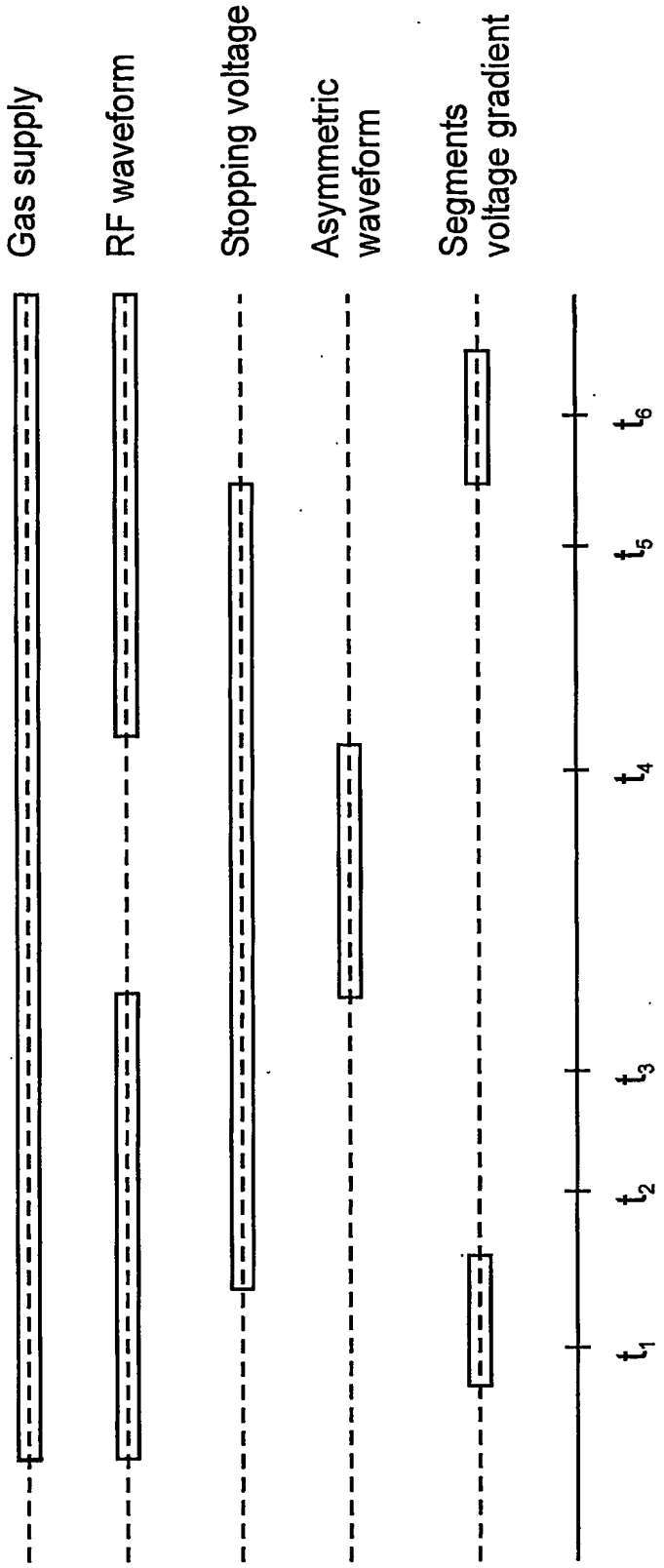
Gas supply
RF waveform
Stopping voltage
Asymmetric waveform
Segments voltage gradient
t_1
t_2
t_3
t_4
t_5
t_6
Time

Figure 3

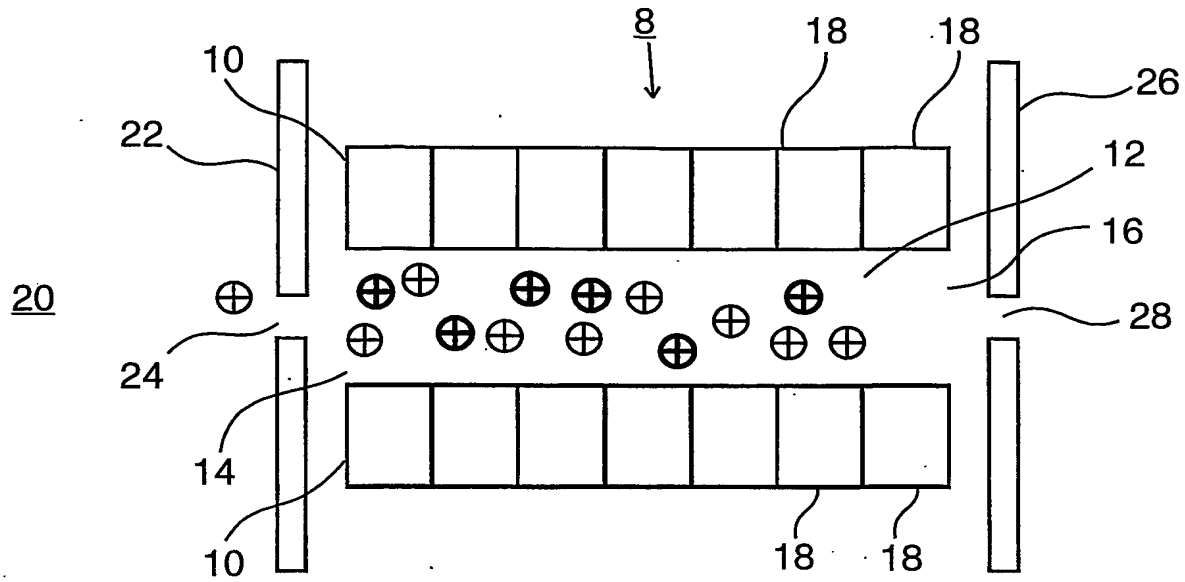

Figure 4a

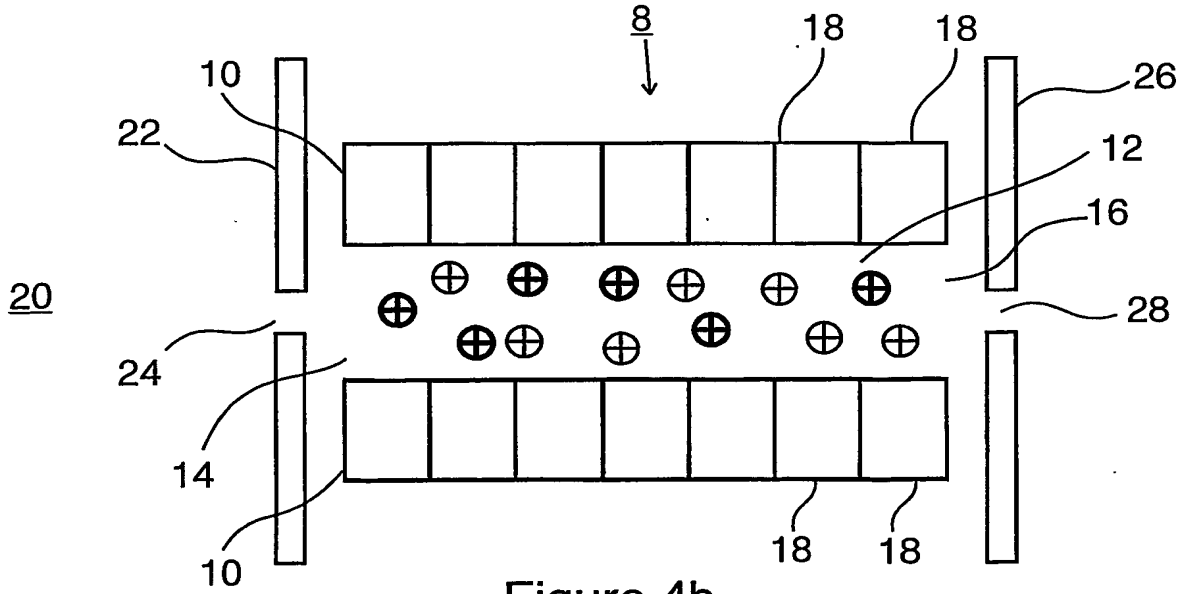

Figure 4b

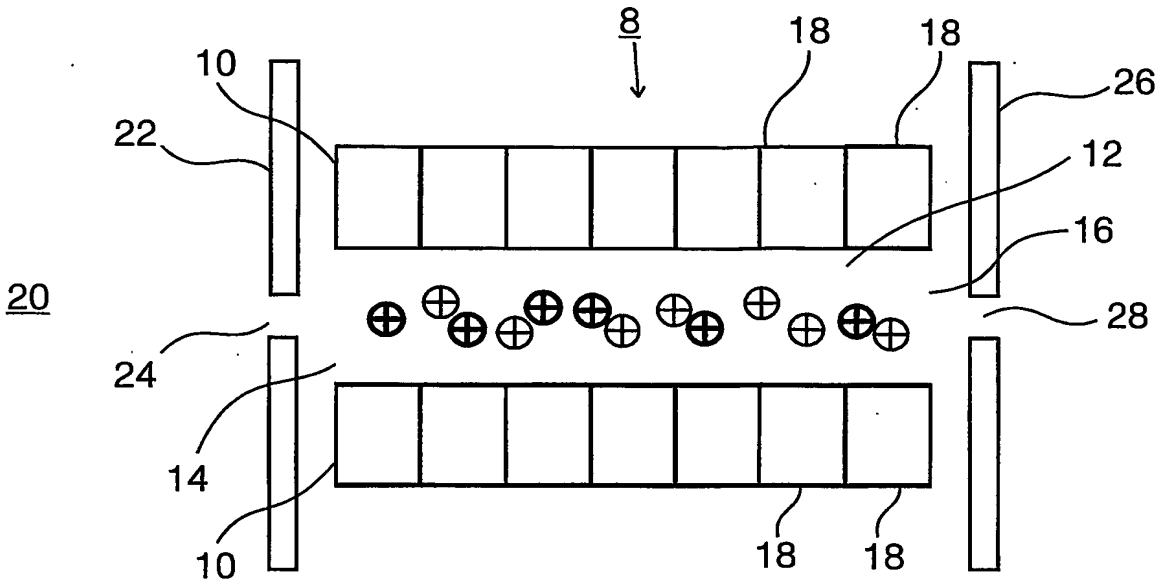

Figure 4c

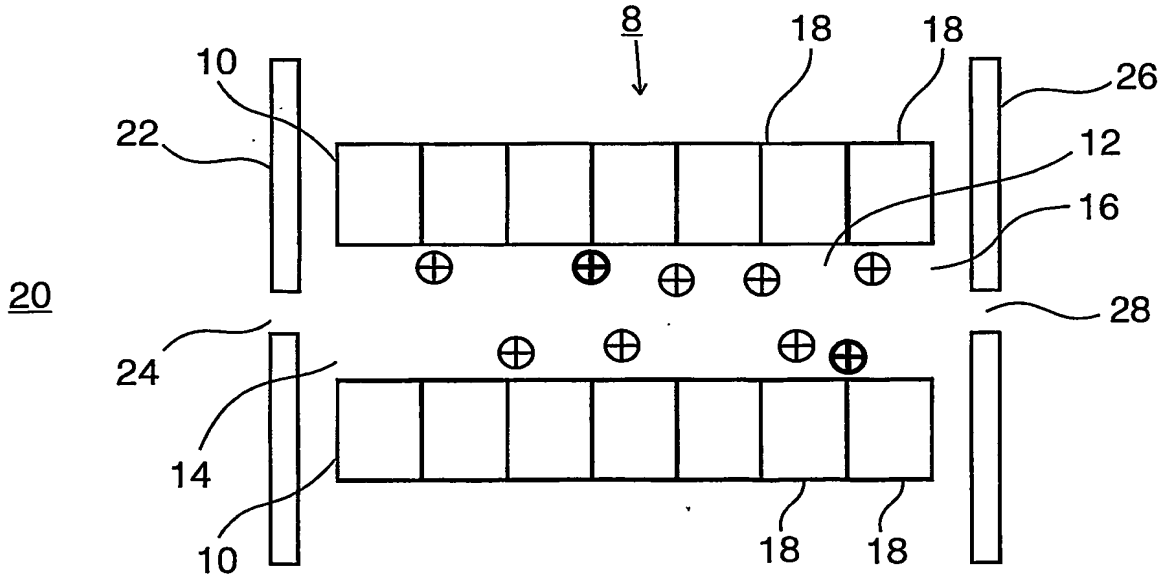

Figure 4d

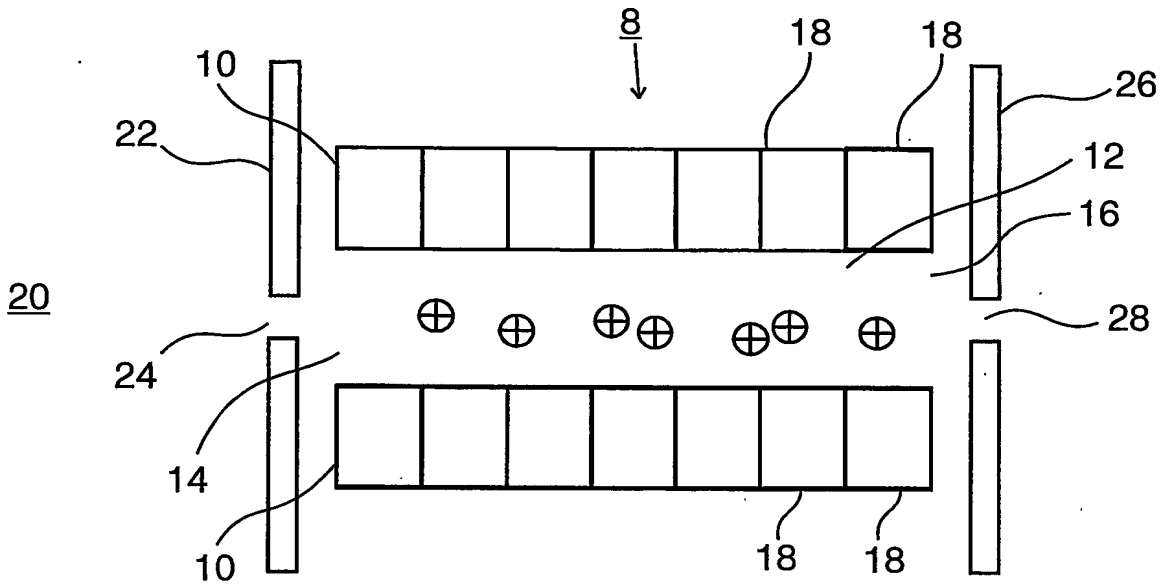

Figure 4e

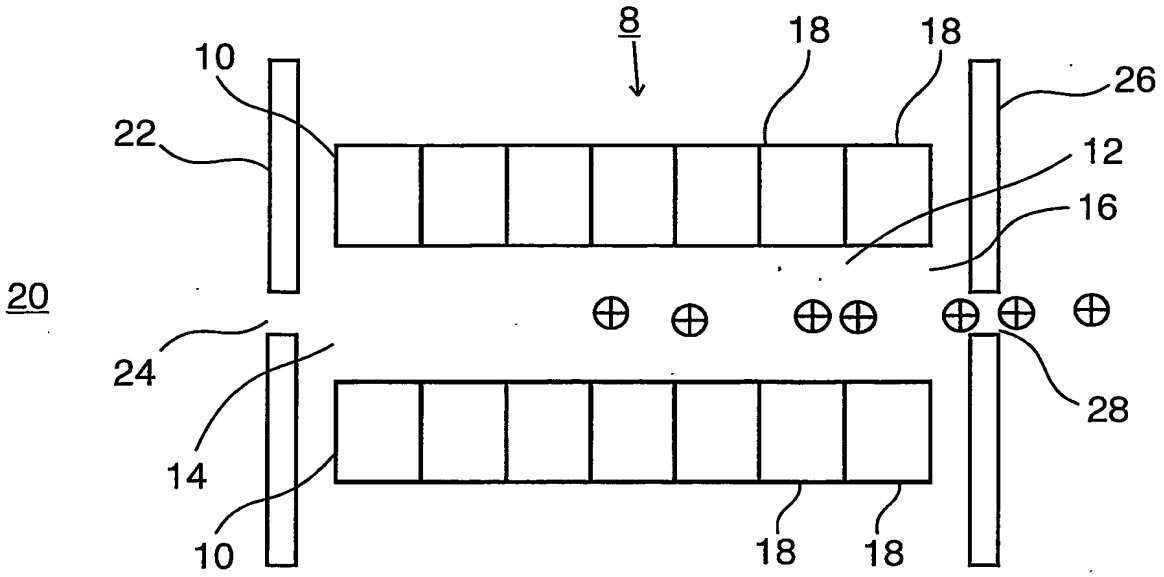

Figure 4f

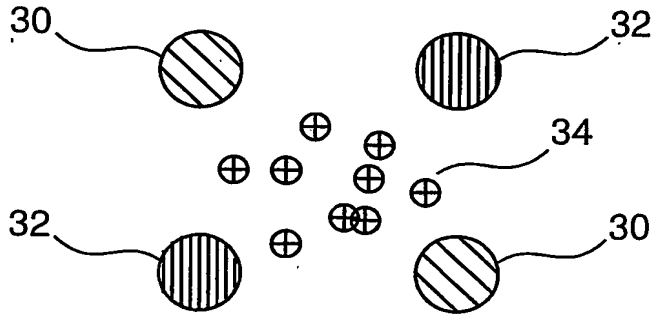

Figure 5a

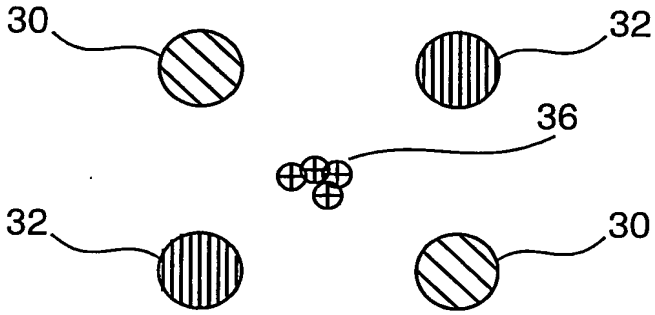

Figure 5b

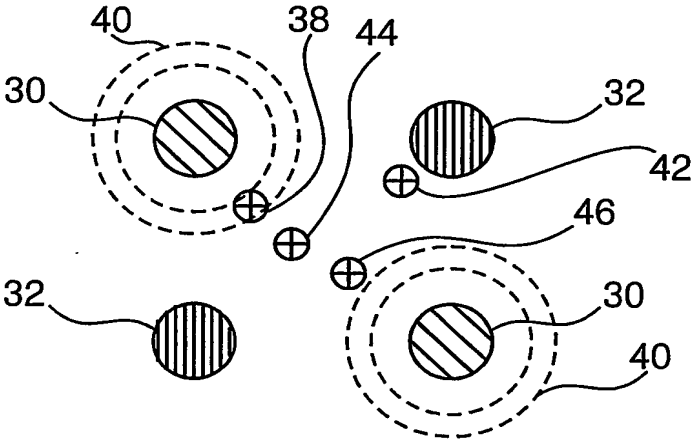

Figure 5c

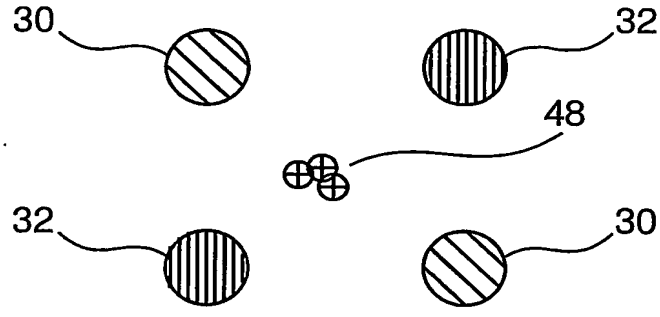

Figure 5d

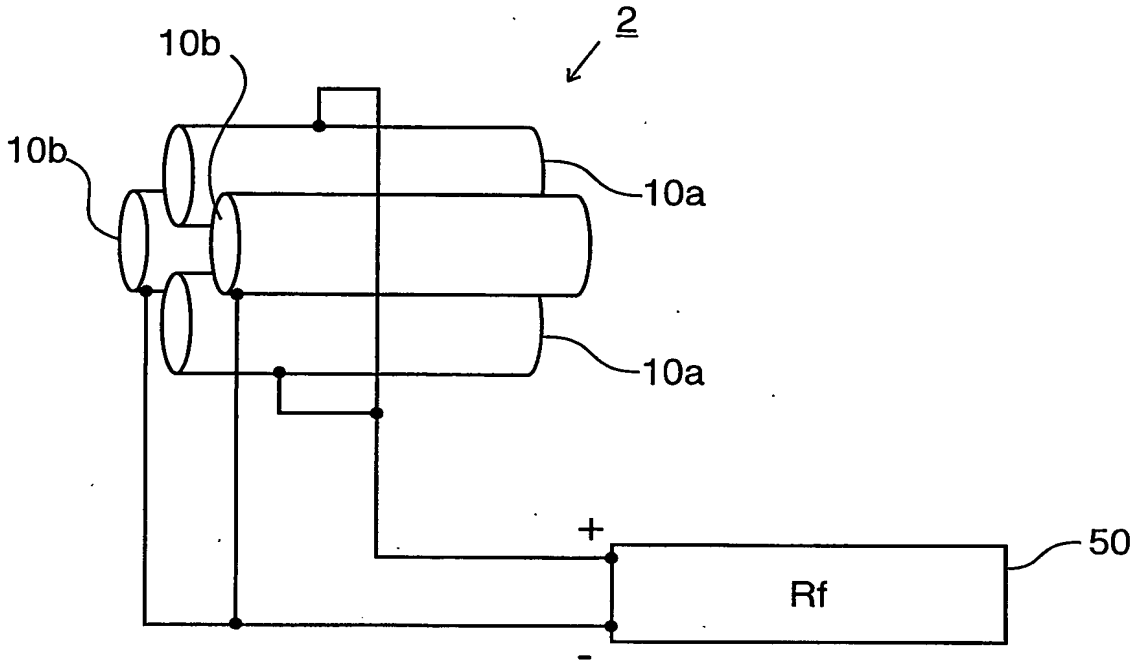

Figure 6a

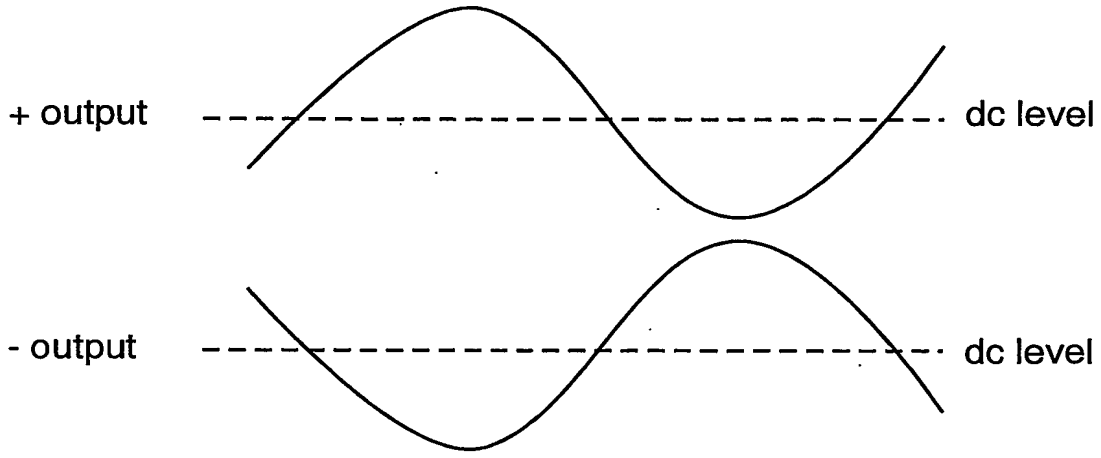

Figure 6b

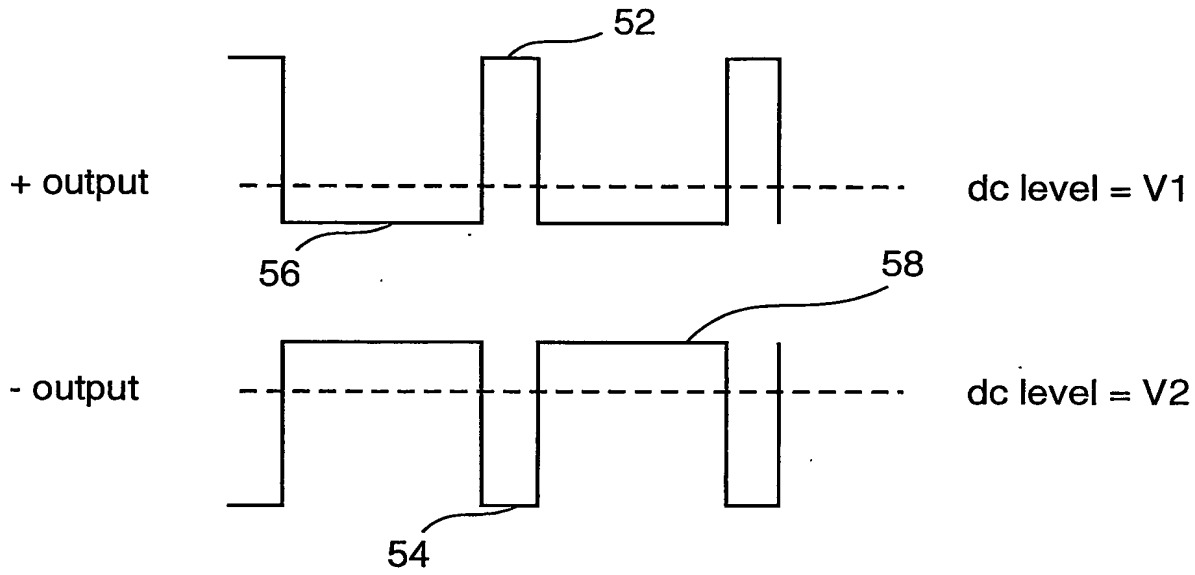

Figure 6c

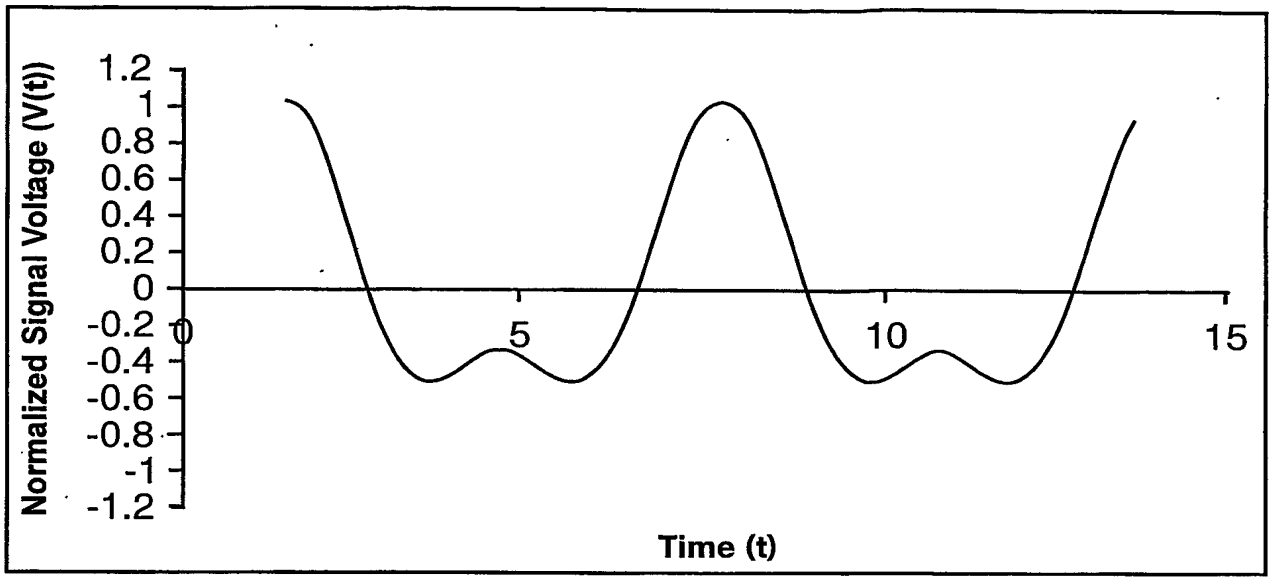

Figure 7a

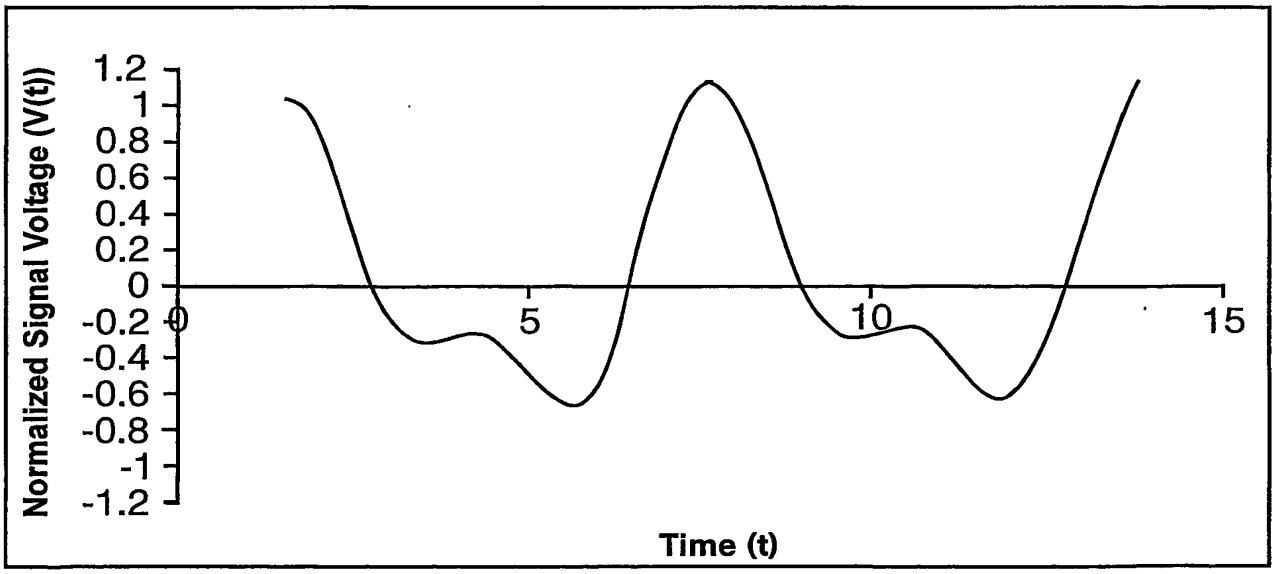

Figure 7b

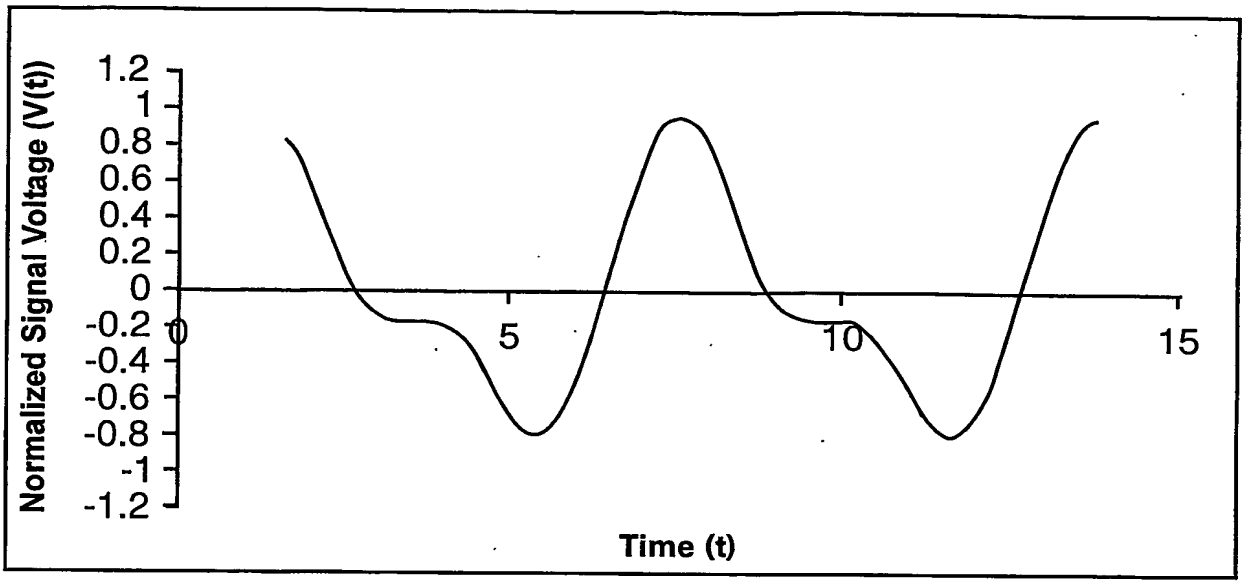

Figure 7c

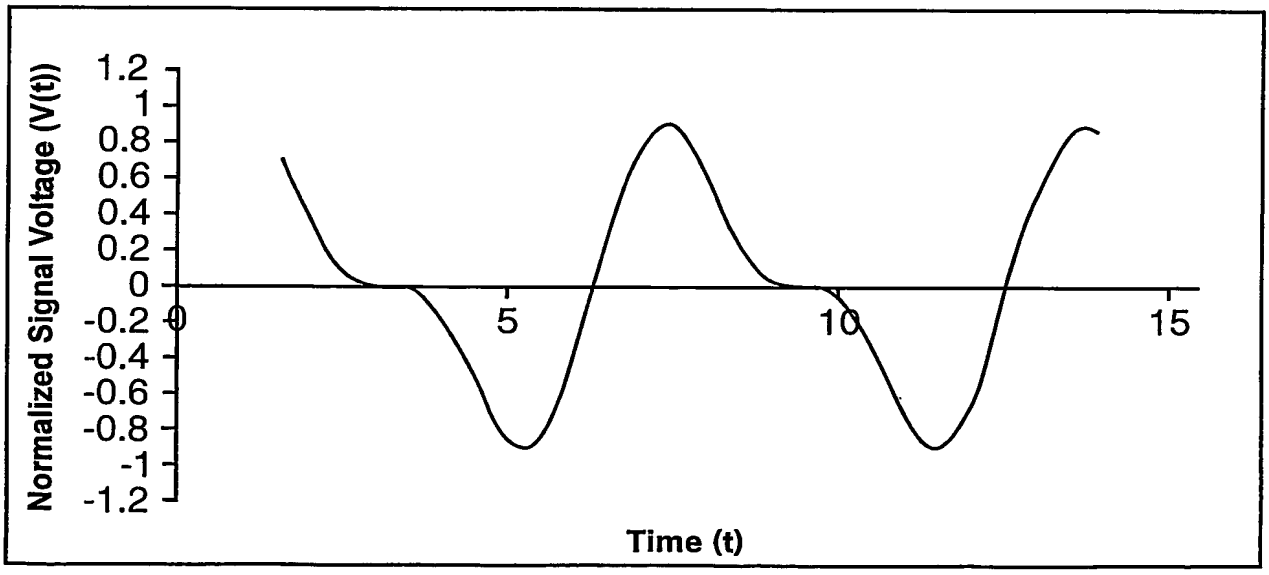

Figure 7d

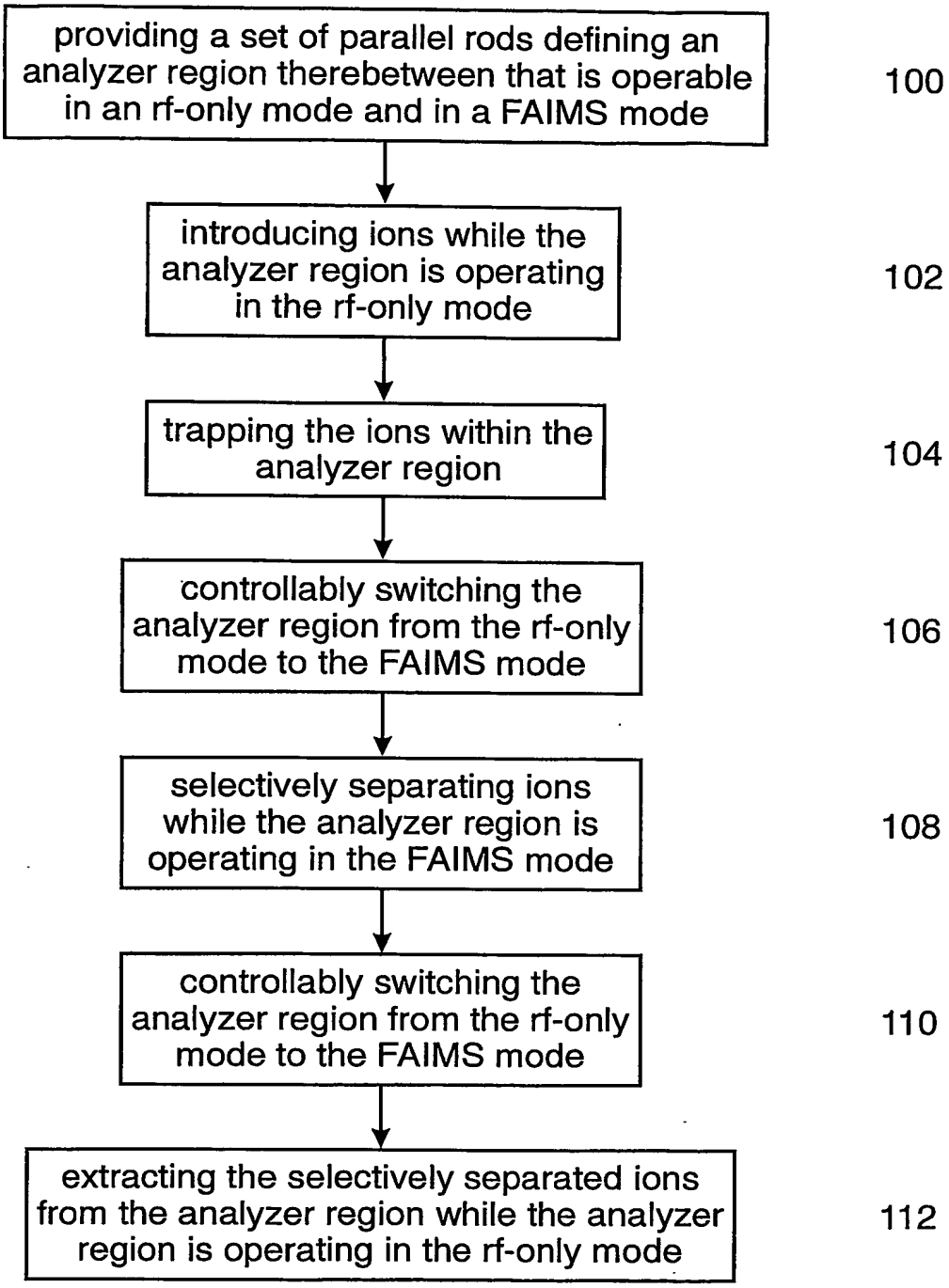
providing a set of parallel rods defining an analyzer region therebetween that is operable in an rf-only mode and in a FAIMS mode
100
introducing ions while the analyzer region is operating in the rf-only mode
102
trapping the ions within the analyzer region
104
controllably switching the analyzer region from the rf-only mode to the FAIMS mode
106
selectively separating ions while the analyzer region is operating in the FAIMS mode
108
controllably switching the analyzer region from the rf-only mode to the FAIMS mode
110
extracting the selectively separated ions from the analyzer region while the analyzer region is operating in the rf-only mode
112

Figure 8

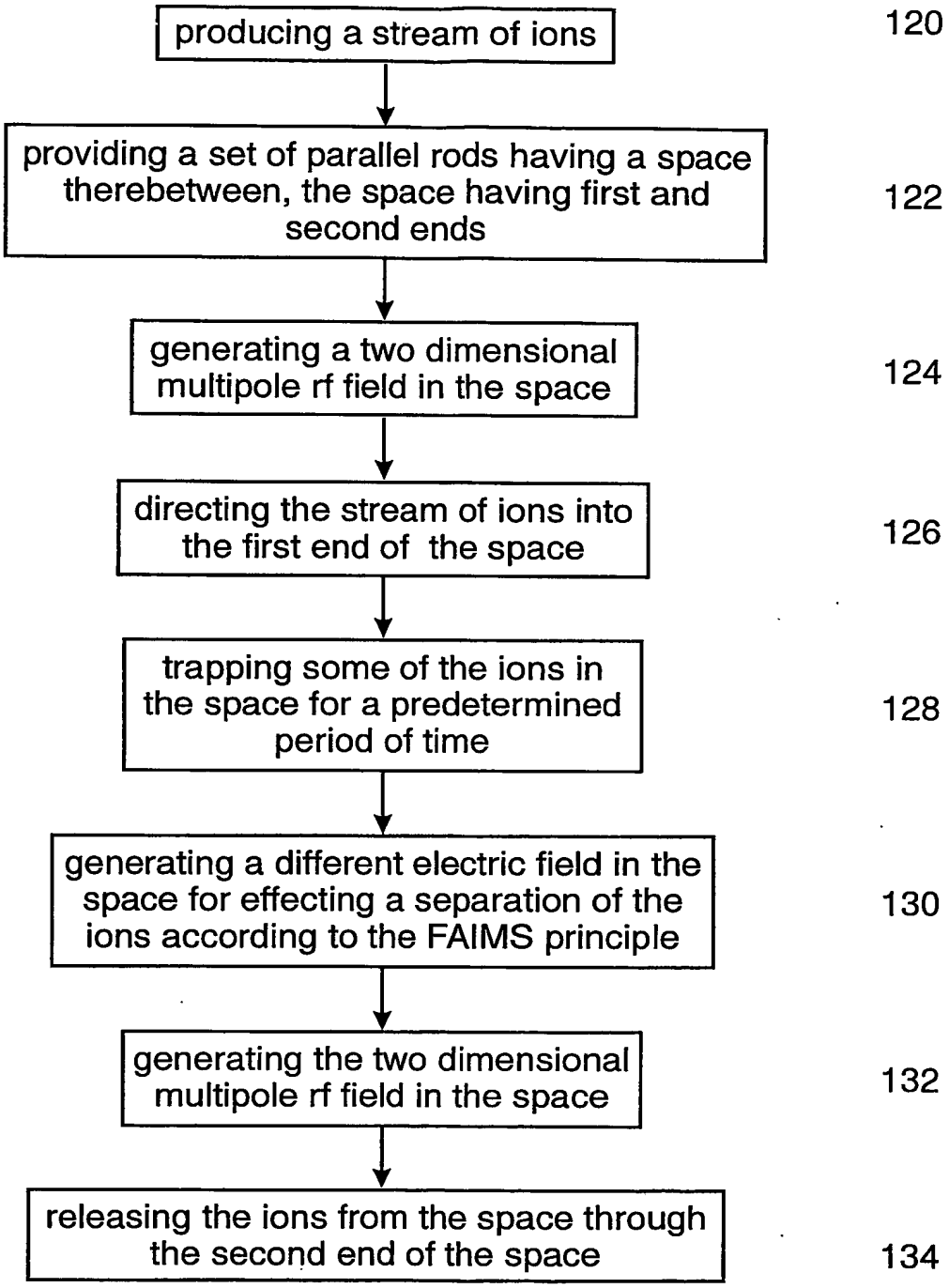
producing a stream of ions
120
providing a set of parallel rods having a space therebetween, the space having first and second ends
122
generating a two dimensional multipole rf field in the space
124
directing the stream of ions into the first end of the space
126
trapping some of the ions in the space for a predetermined period of time
128
generating a different electric field in the space for effecting a separation of the ions according to the FAIMS principle
130
generating the two dimensional multipole rf field in the space
132
releasing the ions from the space through the second end of the space
134

Figure 9